

Mathematics 6

Module 4

Home Instructor's Guide and Assignment Booklet

4A



Alberta

Mathematics 6
Module 4: Fractions, Ratio, and Percent
Home Instructor's Guide and Assignment Booklet 4A
Learning Technologies Branch
ISBN 0-7741-2226-9

The Learning Technologies Branch acknowledges with appreciation the Alberta Distance Learning Centre and Pembina Hills Regional Division No. 7 for their review of this Home Instructor's Guide and Assignment Booklet.

Students	1
Teachers	1
Administrators	
Home Instructors	1
General Public	
Other	



You may find the following Internet sites useful:

- · Alberta Learning, http://www.learning.gov.ab.ca
- · Learning Technologies Branch, http://www.learning.gov.ab.ca/ltb
- · Learning Resources Centre, http://www.lrc.learning.gov.ab.ca

The use of the Internet is optional. Exploring the electronic information superhighway can be educational and entertaining. However, be aware that these computer networks are not censored. Students may unintentionally or purposely find articles on the Internet that may be offensive or inappropriate. As well, the sources of information are not always cited and the content may not be accurate. Therefore, students may wish to confirm facts with a second source.

ALL RIGHTS RESERVED

Copyright © 2002, the Crown in Right of Alberta, as represented by the Minister of Learning, Alberta Learning, 10155 – 102 Street, Edmonton, Alberta T5J 4L5. All rights reserved. Additional copies may be obtained from the Learning Resources Centre.

No part of this courseware may be reproduced in any form, including photocopying (unless otherwise indicated), without the written permission of Alberta Learning.

Every effort has been made both to provide proper acknowledgement of the original source and to comply with copyright law. If cases are identified where this effort has been unsuccessful, please notify Alberta Learning so that appropriate corrective action can be taken.

IT IS STRICTLY PROHIBITED TO COPY ANY PART OF THESE MATERIALS UNDER THE TERMS OF A LICENCE FROM A COLLECTIVE OR A LICENSING BODY.

Module 4: Fractions, Ratio, and Percent

Overview

Module 4 reinforces the student's understanding and use of fractions, including improper fractions and mixed numbers. The student expresses improper fractions as mixed numbers and expresses mixed numbers as improper fractions. The student explores ratios and sees how they are used in daily life. Also, the student models ratios with objects and connects these models to pictures and symbols. Lastly, the student investigates percent as a ratio that compares a number to 100. The ideas learned in this module are applied in problem situations.

Assessment

At the end of each of the three lessons in Module 4, the student will be directed to complete an assignment in one of the two Assignment Booklets. The assignments will be graded by the teacher and have a total value of 90 marks.

The student is also expected to complete the Numbers in the News project. This project has a value of 10 marks. Encourage the student to look through a newspaper at least once a week for items on the Scavenger Hunt list. Read through the list with your student and suggest that he or she begin collecting samples of the ideas that he or she already understands. Other samples can be collected as ideas are introduced or extended in the module. Encourage your student to collect as many samples as he or she wishes. At the end of the module, the student will need to choose at least one sample for each question and submit the samples with the Assignment Booklet.

Pacing

The module has been designed so that the student can work at his or her own pace. Each lesson, including the lesson assignment, will take the average student about one week to complete. The Challenge Activity in each lesson is optional.

Allowing extra time for review of basic facts and project work, Module 4 will take students 4 to 5 weeks to complete.

Lesson 1: Improper Fractions and Mixed Numbers

Overview

This lesson extends the student's understanding of fractions to include improper fractions and mixed numbers. The student applies these ideas to solve problems.

Special Requirements

The following materials are required for Lesson 1:

- pencil cravons
- pattern blocks
- centicubes
- counters

Sharing Time

The student is asked to discuss what he or she is learning at the end of Activity 3.

Activity 3 Sharing Time

1.
$$2\frac{3}{4} = \frac{(4 \times 2) + 3}{4}$$

$$= \frac{8 + 3}{4}$$

$$= \frac{11}{4}$$

2.
$$\frac{15}{6} = 2 \text{ R1}$$
 $7)15$
= $2\frac{1}{7}$ $\frac{14}{1}$

Lesson 2: Ratios

Overview

The student explores the definition of ratio and how ratios are used to solve problems in daily life. The student models ratios with objects and connects these models to pictures and symbols.

Special Requirements

The following materials are required for Lesson 2:

- · centicubes
- · counters

Sharing Time

The student is asked to discuss what he or she is learning at the end of Activity 3.

Activity 3 Sharing Time

Practice and Homework Book, page 42, question 1 and questions 5 to 8

1. triangles to squares 4:7

squares to triangles 7:4

triangles to figures 4:11

5. 6:7 or
$$\frac{6}{7}$$

6. 2 to 9 or
$$\frac{2}{9}$$

8. 3 girls and 5 boys 6 girls and 10 boys 9 girls and 15 boys 12 girls and 20 boys Digitized by the Internet Archive in 2016 with funding from University of Alberta Libraries

ASSIGNMENT BOOKLET 4A

PAT0610 Mathematics 6
Module 4: Lesson 1 Assignment and Lesson 2 Assignment

Home Instructor's Comments	and C	luestions		FOR SCHOOL USE ONLY
				Assigned Teacher:
				Date Assignment Received:
		Home Instructor's Signature		Grading:
FOR HOME INSTRUCTOR USE (if label is missing or incorrect)				Additional Information:
Student File Number:	ere	l is the	rtease verify mat preprintea tabet is for correct course and module.	
	Apply Module Label Here	1	verify inat preprintea tabe correct course and module.	
	odule I		ourse a	
Date Submitted:	pply M	,	veryy m	
	4	9	Frease	
		Name Address Postal Code		
		Po A A		
Teacher's Comments				

Teacher's Signature

INSTRUCTIONS FOR SENDING IN THIS DISTANCE LEARNING ASSIGNMENT BOOKLET

When you register for distance learning courses, you are expected to send in Assignment Booklets for corrections regularly. Try to send each Assignment Booklet as soon as you have completed it. Before sending your Assignment Booklet, please check the following:

- Are all the assignments completed? If not, explain why.
- Has your work been reread to be sure the spelling and details are correct?
- Is the record form filled out and the correct module label attached?

MAII ING

1. Postage Regulations

Do not enclose letters with Assignment Booklets.

Send all letters in a separate envelope.

2. Postage Rates

Take your Assignment Booklet to the post office and have it weighed. Attach enough postage and seal the envelope. Assignment Booklets will travel faster if correct postage is used and if they are in large envelopes that are no more than two centimetres thick.

FAXING

- 1. Assignment Booklets may be faxed. Contact your teacher for the fax number.
- 2. All faxing costs are the responsibility of the sender.

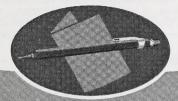
E-MAILING

Assignment Booklets may be e-mailed. Contact your teacher for the e-mail address.

Mathematics 6

Module 4

Fractions, Ratio, and Percent Assignment Booklet 4A







FOR TEACHER'S USE ONLY

Summary

	Total Possible Marks	Your Mark
Lesson 1 Assignment	30	
Lesson 2 Assignment	30	
	60	

Teacher's Comments

Mathematics 6
Module 4: Fractions, Ratio, and Percent
Assignment Booklet 4A
Learning Technologies Branch

The Learning Technologies Branch acknowledges with appreciation the Alberta Distance Learning Centre and Pembina Hills Regional Division No. 7 for their review of this Home Instructor's Guide and Assignment Booklet.

This document is intended for	
Students	1
Teachers	1
Administrators	
Home Instructors	
General Public	
Other	



You may find the following Internet sites useful:

- · Alberta Learning, http://www.learning.gov.ab.ca
- Learning Technologies Branch, http://www.learning.gov.ab.ca/ltb
- Learning Resources Centre, http://www.lrc.learning.gov.ab.ca

The use of the Internet is optional. Exploring the electronic information superhighway can be educational and entertaining. However, be aware that these computer networks are not censored. Students may unintentionally or purposely find articles on the Internet that may be offensive or inappropriate. As well, the sources of information are not always cited and the content may not be accurate. Therefore, students may wish to confirm facts with a second source.

ALL RIGHTS RESERVED

Copyright © 2002, the Crown in Right of Alberta, as represented by the Minister of Learning, Alberta Learning, 10155 – 102 Street, Edmonton, Alberta T5J 4L5. All rights reserved. Additional copies may be obtained from the Learning Resources Centre.

No part of this courseware may be reproduced in any form, including photocopying (unless otherwise indicated), without the written permission of Alberta Learning.

Every effort has been made both to provide proper acknowledgement of the original source and to comply with copyright law. If cases are identified where this effort has been unsuccessful, please notify Alberta Learning so that appropriate corrective action can be taken.

IT IS STRICTLY PROHIBITED TO COPY ANY PART OF THESE MATERIALS UNDER THE TERMS OF A LICENCE FROM A COLLECTIVE OR A LICENSING BODY.

ASSIGNMENT BOOKLET 4A MATHEMATICS 6—MODULE 4: FRACTIONS, RATIO, AND PERCENT

Your mark on this module will be determined by how well you do your assignments in the Assignment Booklets.

There are two lesson assignments in this Assignment Booklet. The total value of these assignments is 60 marks. The value of each question is stated in the left margin.

Work slowly and carefully. If you are having difficulties, go back and review the appropriate lessons.

Be sure to proofread each assignment carefully.



Lesson 1 Assignment: Improper Fractions and Mixed Numbers

Read all parts of your assignment carefully and record your answers in the appropriate places. Clearly show how you arrived at your answers by showing your work.



Turn to page 182 in your textbook to Combining Fractions and Mixed Numbers. The advertising rates for a news magazine are shown.

The following diagram shows a layout of a full magazine page divided into eight equal parts. Each of these parts is the smallest size of advertisement sold. An ad can use any number of these parts, full pages, or a combination of both.



(7)

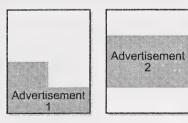
1. Write fractions with a denominator of 8 to describe the different possible sizes of advertisements that use less than a single magazine page. Where possible, also write an equivalent fraction in lowest terms.

Size of Advertisement (number of parts of a page it uses)	Fraction of a Page (with a denominator of 8 to describe its size)	Equivalent Fraction in Lowest Terms

2. Write a fraction with a denominator of 8 that describes one full page.

3

3. A toy company placed three separate advertisements in the magazine. The layouts are shown.





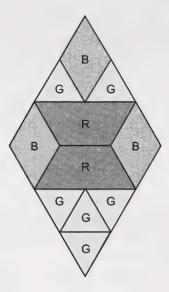
- a. For each advertisement, write a fraction with a denominator of 8 that describes what portion of a full page it uses.
- **b.** Write an improper fraction with a denominator of 8 and a mixed number that tell the number of pages covered in total by the three advertisements.

- c. The toy company was charged \$360 to place the first advertisement.

 Explain how this amount was determined.
- (3) **d.** Find the total cost of the three separate advertisements. Explain.

Use pattern blocks and explain your answers for questions 4 to 6.

4. Make the design shown. If the area of one blue (B) rhombus has a value of $\frac{1}{3}$, what is the value of each of the other pattern blocks?



- a. one green (G) triangle
- **b.** one red (R) trapezoid
- 3 c. the whole design

- **5.** If one blue rhombus has a value of $\frac{1}{3}$, make a design with a value of $\frac{11}{3}$ using the following pattern blocks. Draw your designs in the space provided.
- a. only blue rhombuses

b. nine pattern blocks that include four different shapes of blocks

- **6.** Show $\frac{11}{3}$ as a mixed number by rearranging the blocks from the questions indicated.
- a. question 5.a.

b. question 5.c.



Lesson 2 Assignment: Ratios

Read all parts of your assignment carefully and record your answers in the appropriate places. Clearly show how you arrived at your answers by showing your work.

- 1. A recipe for trail mix calls for 3 scoops of raisins for every 2 scoops of peanuts, and 1 scoop of cashews for every 2 scoops of raisins. Jane used 8 scoops of peanuts to make some of this trail mix.
- (5)
- a. Make a model that shows the number of scoops of all the ingredients Jane used by letting one centicube represent 1 scoop of an ingredient. Pick three different colours of centicubes to represent the three kinds of ingredients, and then draw and label a picture to show your model.

- **b.** How many scoops of raisins did Jane use?
- c. How many scoops of cashews did Jane use?

- d. What is the ratio, in lowest terms, of cashews to peanuts? Explain.
 e. Using a whole number of scoops of each ingredient, how many scoops of each ingredient would Jane have used to make the least amount of the trail mix? Explain.
 f. How many times larger is the amount of trail mix Jane made than the least amount she could have made using a whole number of scoops of each ingredient?
 - 2. The community youth group organized a "boogie-ball" tournament last Saturday. All the members who attended were divided into teams. Each team required the following:
 - 2 strikers to 1 goalie
 - 1 defender to 1 interceptor
 - 3 interceptors to 4 strikers
- a. Draw and label a picture of one complete team of "boogie-ball" players that shows all of the ratios of players as listed above.

1	1	b. How many players were on each team?
3		what would be the ratio of the total number of defenders to the total number of goalies for 4 teams of players? Explain.
3		d. What would be the ratio of the total number of interceptors to the total number of strikers for 5 teams of players? Explain.
2		e. If 24 youth group members showed up to make teams, is it possible for 7 of them to play all the time as interceptors? Explain.
2		February 2007 has 28 days. What is the ratio of the number of days in one week to the number of days in February 2007? Write your ratio two different ways.

Mathematics 6

Module 4

Home Instructor's Guide and Assignment Booklet



Learning Technologies Branch Alberta

Mathematics 6
Module 4: Fractions, Ratio, and Percent
Home Instructor's Guide and Assignment Booklet 4B
Learning Technologies Branch
ISBN 0-7741-2227-7

The Learning Technologies Branch acknowledges with appreciation the Alberta Distance Learning Centre and Pembina Hills Regional Division No. 7 for their review of this Home Instructor's Guide and Assignment Booklet.

This document is intended for	
Students 🗸	
Teachers	1
Administrators	
Home Instructors	1
General Public	
Other	



You may find the following Internet sites useful:

- · Alberta Learning, http://www.learning.gov.ab.ca
- · Learning Technologies Branch, http://www.learning.gov.ab.ca/ltb
- Learning Resources Centre, http://www.lrc.learning.gov.ab.ca

The use of the Internet is optional. Exploring the electronic information superhighway can be educational and entertaining. However, be aware that these computer networks are not censored. Students may unintentionally or purposely find articles on the Internet that may be offensive or inappropriate. As well, the sources of information are not always cited and the content may not be accurate. Therefore, students may wish to confirm facts with a second source.

ALL RIGHTS RESERVED

Copyright © 2002, the Crown in Right of Alberta, as represented by the Minister of Learning, Alberta Learning, 10155 – 102 Street, Edmonton, Alberta T5J 4L5. All rights reserved. Additional copies may be obtained from the Learning Resources Centre.

No part of this courseware may be reproduced in any form, including photocopying (unless otherwise indicated), without the written permission of Alberta Learning.

Every effort has been made both to provide proper acknowledgement of the original source and to comply with copyright law. If cases are identified where this effort has been unsuccessful, please notify Alberta Learning so that appropriate corrective action can be taken.

IT IS STRICTLY PROHIBITED TO COPY ANY PART OF THESE MATERIALS UNDER THE TERMS OF A LICENCE FROM A COLLECTIVE OR A LICENSING BODY.

Lesson 3: Percent

Overview

The student is introduced to percent as a ratio that compares a number to 100. The student will see how percent is used in everyday life.

Special Requirements

The following materials are required for Lesson 3:

- base ten blocks
- centicubes
- pencil crayons
- scissors
- pencil
- crayons
- sheets of paper
- · small index cards

Sharing Time

7. 50%

The student is asked to discuss what he or she is learning at the end of Activity 2.

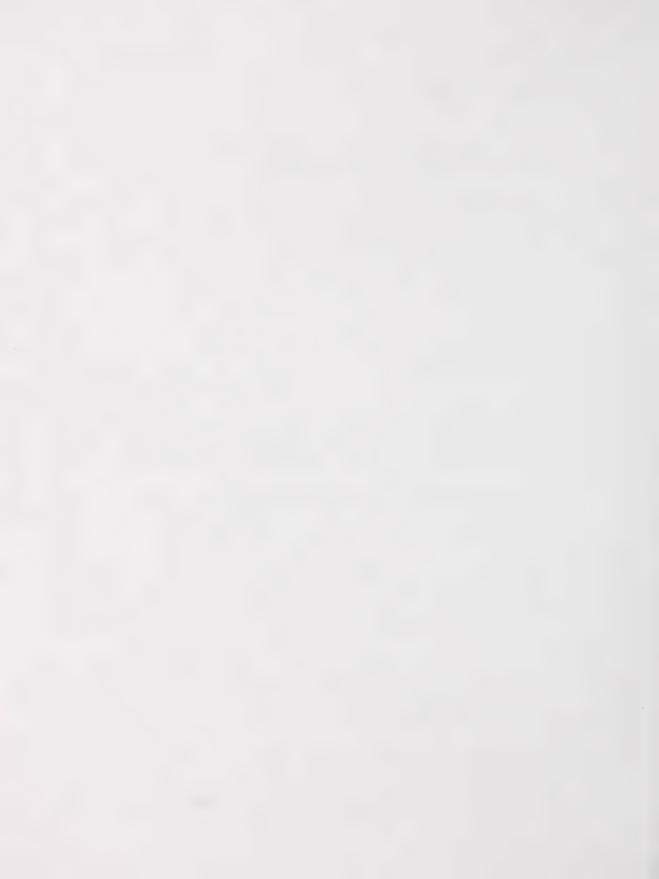
9. 25%

Activity 2 Sharing Time

Practice and Homework Book, page 46, questions 1 to 9

1.	32%	2.	53%	3.	38%
4.	9 %	5.	80%	6.	10%

8. 80%



ASSIGNMENT BOOKLET 4B

PAT0610 Mathematics 6
Module 4: Lesson 3 Assignment and Numbers in the News Project

Home Instructor's Comments	nd Questions	FOR SCHOOL USE ONLY
		Assigned Teacher:
		Date Assignment Received:
	Home Instructor's Signature	Grading:
FOR HOME INSTRUCTOR USE (if label is missing or incorrect) Student File Number: Date Submitted:	Address Address Postal Code	Please verify that preprinted label is for correct course and module. Additional Information:
Teacher's Comments		

Teacher's Signature

INSTRUCTIONS FOR SENDING IN THIS DISTANCE LEARNING ASSIGNMENT BOOKLET

When you register for distance learning courses, you are expected to send in Assignment Booklets for corrections regularly. Try to send each Assignment Booklet as soon as you have completed it. Before sending your Assignment Booklet, please check the following:

- Are all the assignments completed? If not, explain why.
- Has your work been reread to be sure the spelling and details are correct?
- Is the record form filled out and the correct module label attached?

MAILING

1. Postage Regulations

Do not enclose letters with Assignment Booklets.

Send all letters in a separate envelope.

2. Postage Rates

Take your Assignment Booklet to the post office and have it weighed. Attach enough postage and seal the envelope. Assignment Booklets will travel faster if correct postage is used and if they are in large envelopes that are no more than two centimetres thick.

FAXING

- 1. Assignment Booklets may be faxed. Contact your teacher for the fax number.
- 2. All faxing costs are the responsibility of the sender.

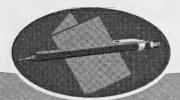
E-MAILING

Assignment Booklets may be e-mailed. Contact your teacher for the e-mail address.

Mathematics 6

Module 4

Fractions, Ratio, and Percent
Assignment Booklet 4B







FOR TEACHER'S USE ONLY

Summary

	Total Possible Marks	Your Mark
Lesson 3 Assignment	30	
Numbers in the News Project	10	
	40	

Teacher's Comments

Mathematics 6
Module 4: Fractions, Ratio, and Percent
Assignment Booklet 4B
Learning Technologies Branch

The Learning Technologies Branch acknowledges with appreciation the Alberta Distance Learning Centre and Pembina Hills Regional Division No. 7 for their review of this Home Instructor's Guide and Assignment Booklet.

This document is intended for	
Students	1
Teachers	1
Administrators	
Home Instructors	
General Public	
Other	



You may find the following Internet sites useful:

- Alberta Learning, http://www.learning.gov.ab.ca
- · Learning Technologies Branch, http://www.learning.gov.ab.ca/ltb
- Learning Resources Centre, http://www.lrc.learning.gov.ab.ca

The use of the Internet is optional. Exploring the electronic information superhighway can be educational and entertaining. However, be aware that these computer networks are not censored. Students may unintentionally or purposely find articles on the Internet that may be offensive or inappropriate. As well, the sources of information are not always cited and the content may not be accurate. Therefore, students may wish to confirm facts with a second source.

ALL RIGHTS RESERVED

Copyright © 2002, the Crown in Right of Alberta, as represented by the Minister of Learning, Alberta Learning, 10155 – 102 Street, Edmonton, Alberta T5J 4L5. All rights reserved. Additional copies may be obtained from the Learning Resources Centre.

No part of this courseware may be reproduced in any form, including photocopying (unless otherwise indicated), without the written permission of Alberta Learning.

Every effort has been made both to provide proper acknowledgement of the original source and to comply with copyright law. If cases are identified where this effort has been unsuccessful, please notify Alberta Learning so that appropriate corrective action can be taken.

IT IS STRICTLY PROHIBITED TO COPY ANY PART OF THESE MATERIALS UNDER THE TERMS OF A LICENCE FROM A COLLECTIVE OR A LICENSING BODY.

ASSIGNMENT BOOKLET 4B MATHEMATICS 6—MODULE 4: FRACTIONS, RATIO, AND PERCENT

Your mark on this module will be determined by how well you do your assignments in the Assignment Booklets.

There is one lesson assignment and a Numbers in the News project in this Assignment Booklet. The total value of the lesson assignment is 40 marks. The Numbers in the News projects is worth 10 marks. The value of each question is stated in the left margin.

Work slowly and carefully. If you are having difficulties, go back and review the appropriate lessons.

Be sure to proofread each assignment carefully.

30

Lesson 3 Assignment: Percent



Read all parts of your assignment carefully and record your answers in the appropriate places. Clearly show how you arrived at your answers by showing your work.

7

1. Turn to page 106 in your textbook to The Meaning of Percent. Use the floor plan for the apartment. Complete the following table to show what percent each room is of the total area.

Room	Percent of Total Area
Kitchen	
Bathroom	
Living Room	
Hallway	
Office	
Bedroom 1	
Bedroom 2	

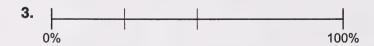


(4)

2. Turn to page 111 in your textbook to Practise Your Skills. Do questions 1 to 4.











6

3. Turn to page 131 in your textbook to Using Ten-by-Ten Grids. Use the three grids to complete the following table. State the number of people represented in each case.

	Grid 1 100 People	Grid 2 500 People	Grid 3 50 People
1 square or 1% of the grid			(omit)
10 squares or 10% of the grid			
20 squares or 20% of the grid			
0.01 of the grid			(omit)
$\frac{1}{5}$ of the grid			

(8)

4. Complete the following table. For each fraction, show how you can find an equivalent fraction with a denominator of 100, and then write it as a decimal and as a percent. An example is done for you.

Example

Fraction	Equivalent Fraction with a Denominator of 100	Decimal	Percent
1/4	$\frac{1 \times 25}{4 \times 25} = \frac{25}{100}$	0.25	25%
<u>2</u> 5			
<u>7</u> 10			
1 <u>8</u> 25			
1 <u>5</u> 20			



5. Turn to page 193 in your textbook to On Your Own. Do questions 1 and 2.

1.

(3)

2.

Numbers in the News

Go through the Scavenger Hunt list for Module 4 to make sure you have clipped at least one example for each question. Ask your home instructor to check the samples you found. Choose the sample you wish to use, and label each one with the Scavenger Hunt number it matches. Organize your samples and put them together with any other information required. Submit your project with this Assignment Booklet.

Ask yourself the following questions:

- Is my Numbers in the News project complete? (Have I included all my samples?)
- Do my samples show the ideas clearly? (Are my examples appropriate?)
- Did I take care to be neat when organizing and labelling my work?



